

Claims

What is claimed is:

1. An equalizer, adapted for interface with a predetermined location in communications equipment, for equalizing a signal flowing through the communications equipment, comprising:

a first circuit comprising at least one resistor, at least one inductor, and at least one capacitor;

a housing comprising a material that is formed about the first circuit to encapsulate the circuit so that the combination of the circuit and material forms a second circuit having predetermined operating characteristics; and

a plurality of pins coupled to the circuit and protruding from the housing so as to interface with the predetermined location.

2. The equalizer of claim 1, wherein the predetermined operating characteristics include an input and output return loss of at least approximately -22 dB.

3. The equalizer of claim 1, wherein the predetermined operating characteristics remain substantially stable over a frequency range of up to about 1 GHz.

4. The equalizer of claim 1, wherein the predetermined operating characteristics are selected from a group consisting of (a) a characteristic impedance of approximately 75 ohms, (b) an output return loss ranging from about 23 to about 40 db over a frequency range

of up to 900 MHz, (c) an input return loss ranging from about 23 to about 40 db over a frequency range of up to 900 MHz, and (d) an insertion loss ranging from 0.65 to 1 db over a frequency range of 700 to 900 MHz.

5. The equalizer of claim 1, wherein the material is polypropylene.

6. A method of making a robust, single piece and passive electronic component, the method comprising:

designing a passive circuit with a first set of operating characteristics, the circuit comprising at least one resistor, at least one inductor, and at least one capacitor; and

molding a non-conducting material around the circuit and at least a portion of a substrate to create a housing that encapsulates the circuit and changes the performance of the circuit to create a second set of operating characteristics.

7. The method of claim 6, wherein the circuit is an equalizer, the molding is injection molding and further comprising determining, before the injection molding, whether the equalizer provides an input and output return loss less than approximately -22 dB.

8. The method of claim 7, further comprising determining, after molding, whether the equalizer provides an input and output return loss of at least approximately -22 dB.

9. A molded electronic component designed to comply with preset operating characteristics comprising a substrate for holding passive circuit elements and a material molded about the substrate and circuit elements, wherein the interaction of the material and the circuit elements causes the component to perform at the preset operating characteristics.

10. The molded electronic component of claim 9, wherein the material forms a housing that is marked with indicia to indicate an operating characteristic associated with the component.

11. The molded electronic component of claim 10, further comprising the housing containing means for interfacing with a piece of equipment selected from the group consisting of CATV equipment, telecommunications equipment, consumer electronics equipment, and computer equipment.

12. The molded electronic component of claim 9, wherein the passive circuit elements form an equalizer and further comprising pins coupled to one or more of the passive circuit elements and adapted to interface the equalizer with a predetermined location in a CATV amplifier.

13. The molded electronic component of claim 9, wherein the passive circuit elements form an equalizer, an attenuator, or a duplex filter.

14. A method for making an encapsulated electronic component comprising :

- (a) designing a circuit to operate at a first set of operating characteristics;
- (b) encapsulating the circuit in a particular material;
- (c) retesting the encapsulated circuit to determine a second set of operating characteristics;
- (d) determining whether the second set of operating characteristics matches a predetermined set of operating characteristics for the encapsulated component; and
- (e) modifying, if necessary, the design of the circuit to account for the effect of the encapsulating material so that the overall encapsulated component performs at the predetermined set of operating characteristics.